REMARKS

Claims Amendments

The claims have been amended for clarification purposes. In particular, claims 1, 2 and 25 have been amended to include providing a downhole flow control means having an open position and a closed position, whereby when in the closed position the flow of hydrocarbons to the surface of the wellbore through both the annulus and inner pipe is prevented. Claims 45 and 63 have been amended to include providing a downhole flow control means having an open position and a closed position, whereby when in the closed position the flow of hydrocarbons to the surface through the inner pipe is prevented. Finally, claims 44 and 55 have been amended to include providing a downhole flow control means having an open position and a closed position, whereby when in the closed position the flow of hydrocarbons to the surface of the wellbore through the annulus is prevented.

Support for these claims can be found throughout the specification and, in particular, on page 5, paragraph 2; page 7, paragraph 1; page 14, paragraph 3, to page 16, paragraph 3, inclusive; and Figures 6-10.

Claims Rejections – 35 USC § 102

Claims 1-9, 21, 23, 15, 26, 28, 29, 32, 42, 44-46, 54-56, 64 and 65 are rejected under 35 U.S.C. 102(e) as being anticipated by the pre-grant publication '111 to Pia (Pia '111). Such rejection is respectfully traversed for the following reasons.

Independent method claims 1 and 2 and independent apparatus claim 25 have been amended to more clearly define the particular embodiment of the invention sought to be protected by them. In particular, each claim has been amended such that the claims include a downhole flow control means having an open position and a closed position, whereby the downhole flow control means is in the open position during active drilling to allow the flow of drilling medium or exhaust drilling medium through the inner pipe and the annulus and in the closed position when well control is necessary to prevent the flow of hydrocarbons through the inner pipe and the annulus to the surface of the wellbore.

As disclosed in the present application, control of the escape of hydrocarbons from the wellbore to the surface (*i.e.*, well control) is important during a drilling operation at certain times. The present invention uses a continuous concentric drill string comprised of joints of concentric drill pipe, which joints are attached to one another by attachment means such as threading means (see page 9, lines 2-3, of the present application). It is understood in the art that active drilling is stopped each time a new joint of drill pipe is added to the drill string. Similarly, active drilling is stopped when tripping concentric drill string out of the wellbore (*i.e.*, removing the joints of drill pipe when the wellbore is completed). Thus, when joints of concentric drill pipe are added or removed and drilling is stopped, there remains a possibility that hydrocarbons from the formation can escape through the concentric drill string annulus, inner pipe or both, depending on the drilling medium used, to the surface of the wellbore.

Similarly, as described on page 16, paragraph 3, of the present application, there are times during drilling operations when a "kick" or overpressure situation occurs down in the wellbore. "Kick" is defined on the U.S. Department of Labor Occupational Safety & Health Administration website:

www.osha.gov/SLTC/etools/oilandgas/glossary_of_terms/glossary_of_terms_a.html

as "an entry of water, gas, oil, or other formation fluid into the wellbore during drilling. It occurs because the pressure exerted by the drilling fluid is not great enough to overcome the pressure exerted by the fluids in the formation drilled. If prompt action is not taken to control the kick, or kill the well, a blowout may occur."

The present invention as claimed in claims 1, 2 and 25 provides a downhole flow control means that has an open position and a closed position. During active drilling, for example, where drilling medium is delivered down the annulus and exhaust drilling medium, drill cuttings and hydrocarbons are removed through the inner pipe, the downhole flow control means as claimed in claims 1, 2 and 25 is placed in the open position (see page 14, last paragraph, of the present application), to allow for the free flow of drilling medium. It is understood that drilling medium can also be delivered through the inner pipe and exhaust drilling medium removed through the annulus (see page 12, paragraph 1, of the present application).

However, when adding or removing joints of concentric drill pipe, or during a kick, the downhole flow control means (which is also referred to in the present application as a downhole blowout preventer) is placed in the closed position (see page 14, paragraph 3, and page 16, paragraph 3, of the present application), thereby preventing a possible blowout ("blowout" is defined on the U.S. Department of Labor Occupational Safety & Health Administration website as "an uncontrolled flow of gas, oil or other well fluids from the well") by closing off both the annulus and inner pipe of the concentric drill string. Thus, the downhole flow control means as claimed in claims 1, 2 and 25 is designed so that it can be readily closed to prevent the possible escape of hydrocarbons through the concentric drill string to the surface of the wellbore and onto the rig floor and then opened again for active drilling.

Pia '111 does not disclose a downhole flow control means having an open position for active drilling and a closed position for well control, *i.e.*, to prevent the flow of hydrocarbons through the annulus and inner pipe of a concentric drill string to the surface. Rather, Pia '11 discloses the use of packers or other sealing arrangements which permanently seal or pack off either the outer annulus between the outer tubing and the bore wall or the inner annulus between the inner and outer tubing. It is well known in the art that most packers once they are set permanently seal off an annulus and that packers are not designed to freely open and close.

Furthermore, Pia '111 does not disclose using its packers for preventing the flow of hydrocarbons during potential blowout situations. Rather, the Pia '111 packers are used to prevent the flow of drilling fluid through one or the other of the inner or outer annuli during drilling. Paragraph 50 of Pia '111, which refers to FIGS. 8a-8h of the drawings, states:

> The tubing arrangement of the embodiments of the invention provides a high degree of flexibility in circulation, as illustrated in FIGS. 8a-8h of the drawings. The figures illustrate that one or more of the inner tubing 70, inner annulus 72, and outer annulus 74 may be utilised to deliver [drilling] fluid from the surface, or return or deliver fluid to the surface. As illustrated in FIGS. 8c, 8d, 8g and 8h, one of the inner or outer annuli may be sealed to prevent fluid passage therethrough. [Emphasis added]

It is clear from this passage and from FIGS. 8a-8h that the packers in Pia '111 are being used to direct drilling fluid circulation during drilling. Even if these seals could be broadly read to be a flow control means, and even if these seals could open and close (which Pia does not even remotely suggest), Pia '111 discloses having these seals in the closed position during active drilling, in order to direct the circulation of the drilling fluid by preventing the flow of drilling fluid through one of the annuli.

In summary, Pia '111 does not disclose closing the (inner) annulus and the inner pipe for well control, *e.g.*, when adding or removing joints of concentric drill pipe or when faced with a potential blowout situation. Thus, Pia '111 does not disclose the invention as claimed in independent claims 1, 2 and 25. Therefore, these claims are not anticipated by this reference. Neither are dependent claims 3-7, 9, 21, 23, 28, 29, 32 and 42. Dependent claim 26 has been canceled.

Independent method claim 45 and independent apparatus claim 64 have both been amended to more clearly define the particular embodiment of the invention sought to be protected by them. In particular, claims 45 and 64 have been amended to include providing a downhole flow control means having an open and a closed position, whereby during active drilling the downhole flow control means is in the open position and when well control is needed the downhole flow control means is placed in the closed position.

The downhole flow control means in claims 45 and 63 is particularly useful in reverse circulation directional drilling where drilling medium is delivered through the annulus and exhaust drilling medium is removed through the inner pipe. In this instance, and, in particular, when the drilling medium is drilling fluid or drilling mud, a downhole flow control means may be used whereby only the inner pipe needs to be closed in order to prevent the flow of hydrocarbons to the surface of the wellbore during well control. This is because the annulus will already be filled with drilling fluid or drilling mud and thus the hydrocarbons would likely not be able to escape through the drilling fluid or drilling mud present in the annulus to the surface (see page 15, last paragraph, of the present application).

As previously mentioned, Pia '111 does not disclose a downhole flow control means that has an open and closed position. The packers or sealing means disclosed in Pia '111 are not able

to open and close as the need arises. Furthermore, Pia '111 does not disclose providing a downhole flow control means such that during active drilling it is in the open position to allow a free flow of drilling medium down through the annulus and up through the inner pipe and is in the closed position when flow control is needed (*e.g.*, when adding or removing joints of concentric drill pipe or during "kick") to prevent the flow of hydrocarbons through the inner pipe to the surface.

In summary, Pia '111 does not disclose a downhole flow control means for sealing the inner pipe during well control, *e.g.*, when adding or removing joints of concentric drill pipe or when faced with a potential blowout situation. Thus, Pia '111 does not disclose the invention as claimed in independent claims 45 and 63. Therefore, these claims are not anticipated by this reference.

Independent method claim 44 and independent apparatus claim 55 have both been amended to more clearly define the particular embodiment of the invention sought to be protected by them. In particular, claims 44 and 55 have been amended to include providing a downhole flow control means having an open and a closed position, whereby during active drilling the downhole flow control means is in the open position and when well control is needed the downhole flow control means is placed in the closed position.

The downhole flow control means in claims 44 and 55 is particularly useful in reverse circulation directional drilling where drilling medium is delivered through the inner pipe and exhaust drilling medium is removed through the annulus. In this instance, and, in particular, when the drilling medium is drilling fluid or drilling mud, a downhole flow control means may be used whereby only the annulus needs to be closed in order to prevent the flow of hydrocarbons to the surface of the wellbore during well control. This is because the inner pipe will already be filled with drilling fluid or drilling mud and thus the hydrocarbons would likely not be able to escape through the drilling fluid or drilling mud present in the inner pipe to the surface.

As previously mentioned, Pia '111 does not disclose a downhole flow control means that has an open and closed position. The sealing means disclosed in Pia '111 are not able to open and close as the need arises. Furthermore, Pia '111 does not disclose providing a downhole flow

control means such that during active drilling it is in the open position to allow a free flow of drilling medium down through the inner pipe and up through the annulus and is in the closed position when flow control is needed (*e.g.*, when adding or removing joints of concentric drill pipe or during "kick") to prevent the flow of hydrocarbons through the annulus to the surface. Rather, Pia '111 discloses a packer whereby the packer is set in the inner annulus during drilling to provide flexibility in circulation of drilling fluid (see Fig. 8d and 8h of Pia '111).

In summary, Pia '111 does not disclose a downhole flow control means for sealing the annulus of a concentric drill string during well control, *e.g.*, when adding or removing joints of concentric drill pipe or when faced with a potential blowout situation. Thus, Pia '111 does not disclose the invention as claimed in independent claims 44 and 55. Therefore, these claims are not anticipated by this reference.

Independent method claim 46 has been amended to include all of the limitations in claims 47 and 48. The examiner states in paragraph 8 of the present Detailed Action that claim 48 would be allowable if rewritten in independent form including all of the limitations of the base claim (46) and any intervening claims (47).

Independent apparatus claim 56 has been amended to include all of the limitations in claims 57 and 58. The examiner states in paragraph 8 of the present Detailed Action that claim 58 would be allowable if rewritten in independent form including all of the limitations of the base claim (56) and any intervening claims (57).

Claims 8, 26, 54 and 65 have been canceled.

Favorable reconsideration of claims 1-7, 9, 21, 23, 15, 28, 29, 32, 42, 44-46, 55, 56, and 64 is respectfully requested.

Claims Rejections – 35 USC § 103

Claims 10, 20, 22, 24, 30, 41, 43, 47 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pia '111 in view of Johnson '431. Such rejection is respectfully traversed for the following reasons.

Claims 10, 20, 22, and 24 are all dependent on either independent claim 1 or 2. As discussed above, Pia '111 does not disclose a downhole flow control means as claimed in claims 1 and 2. Neither so does Johnson '431. Thus, combining the teachings of Pia '111 with Johnson "431 would not result in the invention as claimed in claims 10, 20, 22, and 24.

Claims 30, 41, and 43 are all dependent on independent claim 25. As discussed above, Pia '111 does not disclose a downhole flow control means as claimed in claim 25. Neither so does Johnson '431. Thus, combining the teachings of Pia '111 with Johnson '431 would not result in the invention as claimed in claims 30, 41, and 43.

Claims 47 and 57 have been canceled.

Favorable reconsideration of claims 10, 20, 22, 24, 30, 41, and 43 is respectfully requested.

Claims 12, 14-19, 22, 33, 34, 36-40, 50-52, 59-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pia '111 in view of Lee '403. Such rejection is respectfully traversed for the following reasons.

Claims 12, 14-19, and 22 are all dependent on either independent claim 1 or 2. As discussed above, Pia '111 does not disclose a downhole flow control means as claimed in claims 1 and 2. Neither so does Lee '403. Thus, combining the teachings of Pia '111 with Lee '403 would not result in the invention as claimed in claims 12, 14-19, and 22.

Claims 33, 34, 36-40 are all dependent on independent claim 25. As discussed above, Pia '111 does not disclose a downhole flow control means as claimed in claim 25. Neither so does Lee '403. Thus, combining the teachings of Pia '111 with Lee '403 would not result in the invention as claimed in claims 33, 34, 36-40.

Claims 50-52 and 59-62 have been canceled.

Favorable reconsideration of claims 12, 14-19, 22, 33, 34, and 36-40 is respectfully requested.

Claims 13, 35, 49, 53 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pia '111 in view of Lee '403 and Johnson. Such rejection is respectfully traversed for the following reasons.

Claim 13 is dependent on either independent claim 1 or 2. As discussed above, Pia '111 does not disclose a downhole flow control means as claimed in claims 1 and 2. Neither so does Lee '403 or Johnson. Thus, combining the teachings of Pia '111 with Lee '403 and Johnson would not result in the invention as claimed in claim 13.

Claim 35 is dependent on independent claim 25. As discussed above, Pia '111 does not disclose a downhole flow control means as claimed in claim 25. Neither so does Lee '403 or Johnson. Thus, combining the teachings of Pia '111 with Lee '403 and Johnson would not result in the invention as claimed in claim 35.

Claims 49, 53 and 63 have been canceled.

Favorable reconsideration of claims 13 and 35 is respectfully requested.

New Claims

New claim 67 is old claim 11 rewritten in independent form including all of the limitations of base claim 1 and intervening claims 9 and 10. The examiner has stated in paragraph 8 of the present Detailed Action that such claim would be allowable.

New claim 68 is old claim 31 rewritten in independent form including all of the limitations of base claim 25 and intervening claims 29 and 30. The examiner has stated in paragraph 8 of the present Detailed Action that such claim would be allowable.

New claim 66 is dependent on currently amended claims 44 or 45. New claim 69 is dependent upon currently amended claim 25.

Favorable consideration of new claims 66-69 is respectfully requested.

In view of the arguments presented by Applicant herein, Applicant submits that the current claims are in a condition for allowance and such allowance is respectfully requested.

Respectfully submitted,

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